

ADDENDUM NO. 1

TO: PLANS AND SPECIFICATIONS FOR STATE OF MISSOURI

**Replace Lagoon
Long Branch State Park
Macon, Missouri
Project No. X2302-02**

Bid Opening Date: 1:30 PM, June 18, 2024 (Not Changed)

Bidders are hereby informed that the construction Plans and/or Specifications are modified as follows:

SPECIFICATION CHANGES:

1. ADD Appendix B – Lagoon Closure Report
 - a. See attachment.

DRAWING CHANGES:

1. Sheet C200
 - a. ADD the following General Note to Detail 1 Long Branch State Park LPP Design Parameters: “DRIP DISPERSAL FIELD IS AN APPROVED ALTERNATE TO A LPP SYSTEM.”
2. Sheet C201
 - a. ADD the following sentence to existing Detail 3 note “LPP FIELD FENCE OUTLINE 570 LF TO BE TIED INTO EXISTING FENCELINE.”: “FENCE TO MATCH EXISTING BARB WIRE WITH DOUBLE SWING GATE ENTRANCE TO SITE. CONTRACTOR TO SUBMIT FENCE AND GATE PLAN TO ENGINEER FOR APPROVAL.”
 - b. ADD the following General Note to Detail 2: “CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND DISPOSAL OF TREES. CONTRACTOR TO COORDINATE WITH OWNER. TREE REMOVAL, WHERE LATERAL FIELDS ARE INSTALLED, SHALL INCLUDE FULL REMOVAL OF TREES INCLUDING STUMPS AND ROOTS. NOT TO BE BURNED ON SITE.”

GENERAL COMMENTS:

1. The Pre-Bid Meeting was held on June 3, 2024 at 10:00 AM. The Pre-Bid Meeting sign-in sheet is attached.
2. Please contact Mandy Roberson, Contract Specialist, at 573-522-0074 or Mandy.Roberson@oa.mo.gov for questions about bidding procedures, MBE\WBE\SDVE Goals, and other submittal requirements.
3. The deadline for technical questions was June 11, 2024 at noon.
4. Changes to, or clarification of, the bid documents are only made as issued in the addenda.
5. All correspondence with respect to this project must include the State of Missouri project number as indicated above.

6. Current Plan holders list available online at <https://www.oafmdcplanroom.com/jobs/2470/plan-holders/x2302-02-replace-lagoon-long-branch-state-park>
7. Prospective Bidders contact American Document Solutions, 1400 Forum Blvd Suite 1C, Columbia MO 65201, 573-446-7768 to order official plans and specifications.
8. **All bids shall be submitted on the bid form without additional terms and conditions, modifications, or stipulations. Each space on the bid form shall be properly filled. Failure to do so will result in rejection of the bid.**
9. **MBE/WBE/SDVE participation requirements can be found in DIVISION 00. The MBE/WBE/SDVE participation goals are 0%/0%/3%, respectively. Only certified firms as of the bid opening date can be used to satisfy the MBE/WBE/SDVE participation goals for this project. If a bidder is unable to meet a participation goal, a Good Faith Effort Determination Form must be completed. Failure to complete this process will result in rejection of the bid.**

ATTACHMENTS:

1. Pre-Bid Meeting Sign-In Sheet
2. Appendix B – Lagoon Closure Plan

June 12, 2024

END OF ADDENDUM NO. 1

Replace Lagoon
Long Branch State Park
Macon, MO

Project No. X2302-02
June 3, 2024

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LONG BRANCH STATE PARK LAGOON CLOSURE PLAN

Long Branch State Park
Macon, MO 63552

September 2023

Prepared for:

STATE OF MISSOURI OFFICE OF ADMINISTRATION
DIVISION OF FACILITIES MANAGEMENT, DESIGN, AND
COORDINATION

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Project No. X2302-02



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APPENDIX A LONG BRANCH WWTF LOCATION		

1.0 EXISTING LONG BRANCH WWTF FACILITY DESCRIPTION

1.1 LONG BRANCH FACILITY DESCRIPTION

According to the Missouri DNR NPDES operating permit, The Long Branch WWTF Facility is described as having the following characteristics:

- A two-cell storage basin
- Wastewater is irrigated to the surface (via above ground sprinkler and irrigation field)
- Sludge is retained in the lagoon.
- The facility is not required to have a certified operator.
- The design population equivalent is 28.
- Design Flow is 5,811 gpd (gallons per day)
- Average design flow is 2,741 gpd (dry weather flows)
- Design Sludge Production is 0.42 dry tons per year

1.2 LONG BRANCH FACILITY LOCATION

The location of the treatment facility is described as 28615 Visitor Center Road, Macon, MO 63552. The permitted features of the treatment facility, according to the NPDES permit, are located at the following:

- Permitted Feature 001 – Two Cell Lagoon:
 - Legal Description: Sec. 01, T57N, R15W, Macon County
 - UTM Coordinates: X=540763, Y=4402268
 - Receiving Stream: Tributary to Long Branch Lake
 - USGS Basin and Sub-watershed No.: 10280203-0201
- Permitted Feature 002 – Sprinkler Irrigation Field:
 - Legal Description: Sec. 01, T57N, R15W, Macon County
 - UTM Coordinates: X=540814, Y=4402253
 - Receiving Stream: Tributary to Long Branch Lake
 - USGS Basin and Sub-watershed No.: 10280203-0201

1.3 LONG BRANCH WWTF HISTORY

Missouri Department of Natural Resources (DNR) Division of State Parks owns a wastewater treatment facility at Long Branch State Park in Macon, Missouri. The facility is described as a two-cell storage basin with sludge being retained in the lagoon and wastewater is irrigated to the surface. Long Branch State Park was created in 1983 after reaching a long term lease

agreement with the Corps of Engineers for use of the land. The origin of the lagoon is not exact, but believed to be built in the late 70's and early 80's. The lagoon was modified in 1998 to accommodate additional capacity and updated interconnecting piping. The lagoon will be decommissioned when the new subsurface land application site and transport infrastructure is finalized and online. The project is slated to be constructed and online by the end of 2026.

2.0 WASTE TREATMENT MODIFICATIONS

2.1 LONG BRANCH WASTEWATER COLLECTION CHANGES

The existing gravity collection system combines in a manhole located approximately 15 linear feet northeast of the existing lagoon entrance gate. This manhole will be converted to a wet well with submersible pumps and a valve vault. The existing lagoon system has a 2 inch forcemain from the marina that ties into an inlet located between cell 1 and cell 2. This forcemain would be rerouted to tie into the proposed wet well.

The wet well will then pump the wastewater via 2.5" PVC forcemain along Visitor Center Road to the proposed new subsurface irrigation site (see attached for locations). The forcemain will be laid along the road right of way with air release valves at elevational high points to elevate entrapped air in the forcemain.

2.2 SUBSURFACE IRRIGATION SITE.

The proposed new treatment site will change the functionality of the NPDES permit and wastewater treatment process. Currently the wastewater is land applied via an overland sprinkler system. The proposed treatment site will utilize subsurface irrigation via a low pressure pipe system (LPP). The waste collects in a primary tank for settlement before being dosed to the subsurface field evenly via pvc laterals and manifolds. The subsurface irrigation system will have the following characteristics:

- A. Subsurface Irrigation Details:
 - a. Design Load Rate: 0.20 Gallons Per Day Per Square Foot
 - b. Effective Absorption Area Required: 48,864.00 Ft²/
 - c. Trench Spacing : 3 LF
 - d. Total Trench Length: 16,288 LF
 - e. Lateral Length: 68 LF
 - f. Number Of Zones: 24
 - g. Number Of Trenches Per Zone: 10 Trench Width: 24 Inches
 - h. Orifice Spacing: 3.25 Ft
 - i. Lateral Discharge Rate: 13.39 Gpm

- j. Zone Discharge Rate: 5.57 Gpm/Zone
- k. Lateral Diameter: 1.25"
- l. Lateral Material: Sch 40 Pvc

3.0 EXISTING LAGOON AREA AND LOADINGS

The area encompassed to the top outer berm edge of cell 1 and cell 2 is approximately 102,358 square-feet (2.30 acres). It's been over 20 years since the last sludge analysis or cleaning has occurred. Based on this information and elevations gathered while conducting a topographical survey of the lagoons, 6"-12" of sludge at the bottom will be assumed. To determine the exact sludge volumes and solids concentrations, an analysis with grab samples and by an accredited lab would need to be done.

The plans from the 1998 lagoon modification plans show a floor bottom of 819 in cell 1. The topographical survey of the lagoons for the proposed project showed a range of elevations 819.06 at the lowest point in the middle of cell 1 with readings of 820.5 at the edges where the plans show the floor, confirming the assumption of 6"-12" of sludge in the lagoon. 12" of sludge accumulation would equate to an elevation of 820.00 which would approximately equate to 85,408 gallons (423 CY) of sludge, without dewatering or drying out. Assuming a typical solids concentration of 14% and 86% liquid, this would equate to 59.22 CY of dried sludge.

According to the 1998 lagoon modification plans, the floor of cell 2 is at elevation 814.0'. Like cell 1, the readings from the topographic survey would suggest 6"-12" of sludge in Cell 2. With a sludge level of 1.0 ft, the volume of sludge at elevation 815.0' would approximately equate to 40,851.29 gallons (202.26 CY) of sludge. Assuming a typical solids concentration of 14% and 86% liquid, this would equate to 28.32 CY of dried sludge.

4.0 LAGOON CLOSURE PROCESS

The following will be the process of the removal of the existing 2 cell lagoon and above ground sprinkler irrigation site.

4.1 LAGOON DEWATERING

The lagoon will stay in operation up to the initiation of the new irrigation site, lift station, and distribution forcemain. The lagoon inlets will be capped, and typical treatment and irrigation will remain until 6" of water above the sludge layer in cell 2 is left. The pumped out rate to the irrigation field is not to exceed existing permit and application process. Remaining 6" of water above the sludge layer will be pumped and hauled to a POTW for treatment.

4.2 LAGOON DECOMMISSIONING

The sludge in the bottom of the lagoons is to be left to dry a minimum of 30 days or until sufficiently dried per DNR minimum requirements. The lagoons are to be decommissioned by filling in. Sludge is to be left in place and the berms turned in and mixed with the sludge on a 1:1 ratio. The lagoon cells will be smoothed over and seeded to grass. No mechanical operations occur in the lagoons and will not be required to be removed. Interconnected piping will be removed.

4.3 SPRINKLER IRRIGATION FIELD

The sprinkler irrigation field will be decommissioned, piping and fittings removed, returned to native prairie grass following the decommissioning of the lagoon.

APPENDIX A

LONG BRANCH WWTF LOCATION



LONG BRANCH LAKE

EXISTING SPRINKLER IRRIGATION SITE

EXISTING 2-CELL LAGOON (TO BE DECOMMISSIONED)

